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81 [Applications of machine learning and rule induction](#)



Pat Langley, Herbert A. Simon

November 1995 **Communications of the ACM**, Volume 38 Issue 11

Publisher: ACM Press

Full text available: pdf(554.28 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

Machine learning is the study of computational methods for improving performance by mechanizing the acquisition of knowledge from experience. Expert performance requires much domain-specific knowledge, and knowledge engineering has produced hundreds of AI expert systems that are now used regularly in industry. Machine learning aims to provide increasing levels of automation in the knowledge engineering process, replacing much time-consuming human activity with automatic tec ...

82 [Solving combinatorial optimization problems using parallel simulated annealing and parallel genetic algorithms](#)



Pooja P. Mutalik, Leslie R. Knight, Joe L. Blanton, Roger L. Wainwright

March 1992 **Proceedings of the 1992 ACM/SIGAPP symposium on Applied computing: technological challenges of the 1990's**

Publisher: ACM Press

Full text available: pdf(862.26 KB)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

83 [Combining deterministic and genetic approaches for sequential circuit test generation](#)



Elizabeth M. Rudnick, Janak H. Patel

January 1995 **Proceedings of the 32nd ACM/IEEE conference on Design automation**

Publisher: ACM Press

Full text available: pdf(171.43 KB)

 Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

84 [Concepts and paradigms of object-oriented programming](#)



Peter Wegner

August 1990 **ACM SIGPLAN OOPS Messenger**, Volume 1 Issue 1

Publisher: ACM Press

Full text available:  pdf(5.52 MB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

We address the following questions for object-oriented programming: *What is it? What are its goals? What are its origins? What are its paradigms? What are its design alternatives? What are its models of concurrency? What are its formal computational models? What comes after object-oriented programming?* Starting from software engineering goals, we examine the origins and paradigms of object-oriented programming, explore its language design alternativ ...

85 Classical floorplanning harmful?



Andrew B. Kahng

May 2000 **Proceedings of the 2000 international symposium on Physical design**

Publisher: ACM Press

Full text available:  pdf(29.17 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

Keywords: VLSI floorplanning, block packing and layout, coarse placement, hierarchical design methodology

86 Evolution using genetic programming of a low-distortion, 96 decibel operational amplifier



John R. Koza, Forrest H. Bennett, David Andre, Martin A. Keane

April 1997 **Proceedings of the 1997 ACM symposium on Applied computing**

Publisher: ACM Press

Full text available:  pdf(913.91 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: analog circuit synthesis, automated circuit design, genetic programming, operational amplifier

87 Technical Correspondence: A neural net compiler system for hierarchical organization



Rajeev Kumar

February 2001 **ACM SIGPLAN Notices**, Volume 36 Issue 2

Publisher: ACM Press

Full text available:  pdf(954.76 KB) Additional Information: [full citation](#), [abstract](#), [references](#)

We present a language framework for handling arbitrarily complex neural computations. The software architecture - which we call an **Artificial Neural Network Compiler for Hierarchical ORganization (ANCHOR)** - facilitates network hierarchy and simpler sub-mappings. We define a **Net Definition Language (NDL)** which is implemented in object-oriented programming paradigm; a trained network is decompiled bac ...

Keywords: compiler-decompiler, hierarchical networks, neural net definitions, neural programming language, superneuron

88 Posters and Short Papers: The evolutionary sound synthesis method




Jônatas Manzolli, Adolfo Maia, Jose Fornari, Furio Damiani

October 2001 **Proceedings of the ninth ACM international conference on Multimedia**

Publisher: ACM Press

Ad


ditional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

Full text available:  [pdf\(2.02 MB\)](#)[terms](#)

A mathematical model for interactive sound synthesis based on the application of Genetic Algorithms (GA) is presented. The Evolutionary Sound Synthesis Method (ESSynth) generates sequences of waveform variants by the application of genetic operators on an initial population of waveforms. We describe how the waveforms can be treated as genetic code, the fitness evaluation methodology and how genetic operations such as crossover and mutation are used to produce generations of waveforms. Finally, w ...

89 Reflections on building two Go programs


Bruce Wilcox

October 1985 **ACM SIGART Bulletin**, Issue 94**Publisher:** ACM PressFull text available:  [pdf\(1.42 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#)

From 1972 to 1979 I co-designed and built what became the world's strongest computer Go program, the Reitman-Wilcox Go Program [1]. It took 7 person-years, 8K lines of LISP, 3 megabytes of memory, and an IBM mainframe. Recently I constructed a similar program, called NEMESIS...the Go Master (tm). It has taken 1 person-year, 13.5K lines of C, 146 kilobytes of memory, and an IBM-PC. They play at a similar strength and by similar means. This article discusses both how I went about reengineering the ...

90 Simulation-based techniques for dynamic test sequence compaction

Elizabeth M. Rudnick, Janak H. Patel


January 1997 **Proceedings of the 1996 IEEE/ACM international conference on Computer-aided design****Publisher:** IEEE Computer SocietyFull text available:  [pdf\(272.65 KB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)[Publisher Site](#)

Simulation-based techniques for dynamic compaction of test sequences are proposed. The first technique uses a fault simulator to remove test vectors from the partially-specified test sequence generated by a deterministic test generator if the vectors are not needed to detect the target fault, considering that the circuit state may be known. The second technique uses genetic algorithms to fill the unspecified bits in the partially-specified test sequence in order to increase the number of faults ...

Keywords: dynamic test compaction, compact test sets, sequential circuit test generation, genetic algorithms

91 Book reviewsApril 2000 **intelligence**, Volume 11 Issue 1**Publisher:** ACM PressFull text available:  [pdf\(243.97 KB\)](#)Additional Information: [full citation](#), [references](#), [index terms](#)[html\(31.94 KB\)](#)92 The SEI undergraduate curriculum in software engineering

Gary Ford

March 1991 **ACM SIGCSE Bulletin , Proceedings of the twenty-second SIGCSE technical symposium on Computer science education SIGCSE '91**, Volume 23 Issue 1**Publisher:** ACM PressFull text available:  [pdf\(1.18 MB\)](#)Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

93 The application of genetic algorithms to the design of reconfigurable reasoning VLSI chips



Moritoshi Yasunaga, Jung Hwan Kim, Ikuo Yoshihara

February 2000 **Proceedings of the 2000 ACM/SIGDA eighth international symposium on Field programmable gate arrays**

Publisher: ACM Press

Full text available: pdf(672.51 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper, we present a new genetic-algorithm-based design methodology for reasoning VLSI chips, called as LoDETT (logic design with the evolved truth table). In LoDETT, each task's case database is transformed into truth tables, which are evolved to obtain generalization capability (i.e. rules behind the past cases) through genetic algorithms. Digital circuits are synthesized from the evolved truth-tables. Parallelism in each task can be embedded directly in the circuits by the direct ...

94 A fast and stable hybrid genetic algorithm for the ratio-cut partitioning problem on hypergraphs



Thang Nguyen Bui, Byung Ro Moon

June 1994 **Proceedings of the 31st annual conference on Design automation**

Publisher: ACM Press

Full text available: pdf(218.09 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

95 Genetic VLSI circuit partitioning with two-dimensional geographic crossover and zigzag mapping



Buyng-Ro Moon, Yoon-Sik Lee, Chun-Kyung Kim

April 1997 **Proceedings of the 1997 ACM symposium on Applied computing**

Publisher: ACM Press

Full text available: pdf(499.27 KB) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: circuit partitioning, equivalence class, genetic algorithm, geographic crossover, geographical linkage

96 Looking into education's high-tech future



Derek Bok

September 1985 **ACM SIGUCCS Newsletter**, Volume 15 Issue 3

Publisher: ACM Press

Full text available: pdf(1.70 MB) Additional Information: [full citation](#), [abstract](#)

During the past year, universities have begun to attract a new kind of publicity. The most arresting stories to appear in our newspapers have not featured students or professors or even new curricula. They have focused on machines: Hewlett-Packard Gives Five Million Dollar Grant for Computer Equipment to Harvard Medical School

97 Hardware evolution system AdAM




Tomofumi Hikage, Hitoshi Hemmi, Katsunori Shimohara

April 1999 **Communications of the ACM**, Volume 42 Issue 4

Publisher: ACM Press


Full text available: pdf(173.57 KB) Additional Information:

 [html\(8.14 KB\)](#)[full citation](#), [references](#), [index terms](#)**98** [Visualizing differences in movies of cortical activity](#)

Kay A. Robbins, David M. Senseman

October 1998 **Proceedings of the conference on Visualization '98****Publisher:** IEEE Computer Society Press


Full text available:

 [pdf\(1.42 MB\)](#)Additional Information: [full citation](#), [references](#), [index terms](#)
[Publisher Site](#)**Keywords:** animation, scientific visualization, video analysis**99** [Life is universal!](#)

Robert T. Wainwright

January 1974 **Proceedings of the 7th conference on Winter simulation - Volume 2****Publisher:** ACM Press

Full text available:

 [pdf\(1.02 MB\)](#)Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


The game of Life¹ involves forms built out of simple birth and death rules which a computer puts through a series of rapid transformations. This game was invented by John Horton Conway and recently introduced in Scientific American by Martin Gardner. Many computers have been programmed to play the game of Life. In this paper we shall show how to return the compliment by making Life forms that can imitate computers. Then we shall see that many remarkable consequences fol ...

100 [Real interactivity in interactive entertainment](#)

Talin

May 1994 **ACM SIGGRAPH Computer Graphics**, Volume 28 Issue 2**Publisher:** ACM Press

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S2	8930	S1 and configur\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:43
S3	0	S2 and (fitness with funtion)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:43
S4	169	S2 and (fitness)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:43
S5	8967	S1 and (configur\$5 or reconfigur\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/06 16:58
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S8	41084	((evolution\$3 or evolv\$3) and (circuit or synthesis or synthesiz\$3)) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/06 16:58

S9	17797	S8 and (configur\$5 or reconfigur\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/06 16:58
S10	411	S9 and (fitness)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/06 16:58
S11	159	S10 and (simulation and function and model)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/06 17:00
S12	2	09/395235	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/07 09:40
S13	0	10/061066	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/07 09:40
S14	41084	((evolution\$3 or evolv\$3) and (circuit or synthesis or synthesiz\$3)) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:48
S15	17797	S14 and (configur\$5 or reconfigur\$5)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/07 10:40
S16	411	S15 and (fitness)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/07 13:56

S17	2	"5867397".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/07 13:57
S18	41139	((evolution\$3 or evolv\$3) and (circuit or synthesis or synthesiz\$3)) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/08 15:42
S19	2771	S18 and simulation	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/08 15:42
S20	375	S19 and ((mix\$3 or combin\$3 or combination\$3) with models)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/08 15:43
S21	14140	(genetic and (evolution\$3 or evolv\$3) and (circuit or synthesis or synthesiz\$3)) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/08 15:42
S22	994	S21 and simulation	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/08 15:42
S23	166	S22 and ((mix\$3 or combin\$3 or combination\$3) with models)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/09 10:33
S24	20	716/1.ccls. and (knowledg\$3 near3 base\$1) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/09 10:35

S25	28	716/1.ccls. and (evolution\$4 or evolv\$3) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/09 10:37
S26	28	716/1.ccls. and (evolution\$4 or evolv\$3 or genetic) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/09 10:38
S27	138	716/1-21.ccls. and (evolution\$4 or evolv\$3 or genetic) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/09/09 10:38
S28	2	"6526556".pn.	US-PGPUB; USPAT; DERWENT; IBM_TDB	OR	ON	2005/09/12 11:57
S29	0	714/732.ccls. and 714/738-741.ccls. and ((evolution or evolv\$3) and (circuit or sythesis or sythesiz\$3)) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:42
S30	0	714/732.ccls. and 714/738-741.ccls. and ((evolution or evolv\$3) and (circuit or synthesis or synthesiz\$3)) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:42
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S32	17290	S31 and configur\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:50
S33	0	S32 and (fitness with funtion)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:43

S34	408	S32 and (fitness)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:43
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S36	48656	((design\$3 or synthesis or synthesiz\$3) with circuit) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB	OR	ON	2006/01/26 14:49
S37	30017	S36 and configur\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:50
S38	5655	S37 and simulat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/26 14:50
S39	98	S38 and (monte with carlo)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 08:57
S40	48656	((design\$3 or synthesis or synthesiz\$3) with circuit) and @rlad<"20020129"	US-PGPUB; USPAT; USOCR; EPO; JPO; IBM_TDB	OR	ON	2006/01/27 08:57
S41	30017	S40 and configur\$5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 08:57
S42	5655	S41 and simulat\$3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 08:57

S43	9	S42 and (monte with carlo) and (spice or hspice) and (level or resolution)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 09:11
S44	1	S42 and (monte with carlo) and (spice or hspice) and resolution	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2006/01/27 09:11